Delaware Nutrient Management Program

DELAWARE CONSERVATION PRACTICE STANDARD

PROCESSED WASTE WATER TESTING FOR LAND APPLICATION

(Reported as gallons per acre applied and lbs of constituents per

DEFINITION

A laboratory analysis of processed waste water to determine nutrient, metals, and other constitutants and water quality parameters for the purpose of determining land application rates and constituent loading to the soil.

PURPOSES

For purposes of this standard, this document provides guidance for all businesses engaged in the handling, marketing or agricultural utilization of non-hazardous waste products generated by industrial or commercial activities which will be utilized in agricultural or horticultural setting as a fertilizer or soil amendment agent.

Operations applying to manures, waste vegetables or other materials produced under agricultural settings, or products of materials currently regulated or managed by the Delaware Department of Agriculture for use by farmers in agricultural activities, and are not subject to requirements in this standard.

The Delaware Department of Natural Resources and Environmental Control encourage the reuse of utilization of waste products as a viable alternative to disposal or incineration where appropriate. The standards outlined herein apply to waste products that, because of their physical, chemical or biological characterization, may be used as soil conditioners or as substitutes to commercial fertilizers in agricultural settings.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to any businesses engaged in the handling, marketing or agricultural utilization of non-hazardous waste products generated by industrial or commercial activities which will be utilized in agricultural or horticultural setting as a fertilizer or soil amendment agent.

For agricultural operations applying treated or untreated waste water generated by their own operation, this standard does not apply. These operations must follow the nutrient management standard.

CONSIDERATIONS

Any person or business who would like to utilize waste water is required to perform tests to characterize the source and constituent make-up of the waste product.

Waste products to be utilized in land application projects may range from relatively clean by-products such as those from certain food processing industries to those which are potentially toxic above certain threshold limits and would require special considerations. As such it is important that the composition of the waste product be determined.

The degree of analysis required is dependent on the ability of the applicant to identify the composition of the waste product. By-products whose composition can be clearly determined through source identification may only need to be analyzed for nutrient status, providing it can be shown that the certain are either absent or at low enough concentrations that they pose no significant environmental or public health risks. However, waste products whose composition is difficult to consistently ascertain will be required to be analyzed for the constituents cited in Reference 1.

The waste product generator shall submit to the Department a chemical analysis of the waste product in accordance with Reference 1 every three months following permit issuance unless the DNREC approves a different schedule in the permit. The parameters for analysis will be developed based upon the critical or controlling

constituents determined through the characterization of the by-product.

In no case shall the cumulative metals loadings exceed the levels set forth Reference 1. The applicant shall calculate the potential site life for the constitute metals.

An application for a permit to utilize a waste product for agricultural purposes or in a distribution and marketing program shall include a Waste Management Plan for Department review and approval. The Waste Management Plan shall, at a minimum, provide an explanation of how the waste product will be utilized; i.e. whether the proposed operation is for agricultural utilization, distribution and marketing, research, or land reclamation.

An operation plan to include proposed application rates and identification of land limiting constituents (LLC); the proposed life of the operation; equipment to be used for site preparation, land application and incorporation of the waste (if applicable); storage practices and specifications including storage volume, holding time, run-on/runoff control and site access control; and other relevant information requested by the DNREC.

CRITERIA

General Criteria Applicable to All Purposes

Source Characterization

1) The business applying waste water shall describe fully the process or systems that generate the waste product. At a minimum, the following information shall be submitted in characterizing the source of the waste product:

a. A process flow chart which identifies and explains each phase of the waste product generation process;

b. A description of all major equipment and components used in the process that generates the waste product;

c. A description of any stabilization or treatment process the waste product will undergo prior to final utilization, including (where applicable):

i) A description of all major equipment used in the stabilization or treatment process;

ii) Location and type of all monitoring worksheets used in monitoring the stabilization or treatment process;

iii) Contingency or emergency operating plans; and

iv) Other relevant information requested by the Department.

2) The applicant shall l provide an estimate of the quantity of the waste product that is currently being produced and the anticipated quantity to be generated annually for utilization.

3) Waste products containing pathogenic agents shall be stabilized in accordance with a process cited in Reference 1.

Constituent Characterization

1) Waste products to be utilized in land application projects may range from relatively clean by-products such as those from certain food processing industries to those which are potentially toxic above certain threshold limits and would require special considerations. As such it is important that the composition of the waste product be determined.

The degree of analysis required is dependent on the ability of the applicant to identify the composition of the waste product. By-products whose composition can be clearly determined through source identification may only need to be analyzed for nutrient status, providing it can be shown that the constituents identified in Reference 1 are either absent or at low enough concentrations that they pose no significant environmental or public health risks. However, waste products whose composition is difficult to consistently ascertain will be required to be

analyzed for the constituents cited in Reference 1.

2) The waste product generator shall submit to the Department a chemical analysis of the waste product in accordance with Reference 1 every three months following permit issuance unless the DNREC approves a different schedule in the permit. The parameters for analysis will be developed based upon the critical or controlling constituents determined through the characterization of the by-product.

3) In no case shall the cumulative metals loadings exceed the levels set forth in Reference 1. The applicant shall calculate the potential site life for the constitute metals.

4) The waste product generator shall perform and submit to the Department and landowner additional analyses if there has been a significant change (greater than 25%) in the quality of the waste product from the original characterization.

Laws, Rules, and Regulations. Use of waste water as part of a waste management system and plan shall be planned and implemented to meet all federal, state, and local laws, rules, and regulations.

Labeling and Instructions for Use. Products to be used as manure amendments shall be labeled or accompanied by instructions containing the following information as a minimum:

1. Active ingredients and their percentage of the whole. Proprietary terminology may be used as long as the actual chemical and/or biological names are included.
2. The purpose(s) for which the amendment is intended.
3. Recommended application rate(s) to achieve the intended purpose(s).
4. Application timing and methodology to optimize the effectiveness of the amendment.
5. Incorporation requirements.
6. Special handling and storage requirements for the amendment. Note that Phytase is susceptible to degradation during extended storage periods.
7. Any safety concerns relating to the use of the amendment and recommended measures to overcome the safety concern, including any required personal protective equipment.

Additional Requirements.

(1) Agricultural Utilization.

If the applicant proposes to repeatedly (more than two consecutive years) utilize the waste product at a specific agricultural site, the following additional information shall be submitted:

(a) A topographic map or other map on a scale no less than 1" = 400'. The map shall include the following information:

(i) The boundaries of the land where the waste product will be applied, including total acreage available for utilization;

(ii) The location of any watercourses, drainage structures or wetlands within 1000' of the proposed site;

(iii) Residences and habitable structures within 1000' of the proposed site:

(iv) Flood elevations:

(v) A description of the soil characteristics of the site; and

(vi) On-Site storage facility specifications (if applicable).

(b) A Vegetable Management Plan which shall include, at a minimum, the following information:

(i) A projected crop rotation plan which shall specify crops to be grown, anticipated yield, fertilizer requirements, planting and harvesting schedules, timing of application of the waste product, application rate of the waste product and final use of the crop;

(ii) The method and frequency for applying the waste product to the site and the method of incorporating the waste product to the site, if applicable;

(iii) The total volume of waste product to be applied to the site and the proposed life of the operation;

(iv) Methods to manage runoff and control erosion during the life of the project; and

(v) If the waste product is to be applied to land owned by persons other than the generator of the waste product, the name and address of the landowner and evidence that the landowner has reviewed and approved by the project.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared in accordance with the previously listed criteria. Plans and specifications shall contain sufficient detail to ensure successful implementation of this practice. Documentation shall be in accordance with the section "Supporting Data and Documentation" in this standard.

OPERATION AND MAINTENANCE

All equipment will be maintained in accordance with manufacturer's recommends. Records of maintenance procedures and results will be kept.

The applicant shall develop a QA/QC plan assure that the consistency of the waste product is maintained. If the waste product is to be stabilized or otherwise processed, the process shall be routinely monitored and the information recorded on a form approved by the DNREC. The QA/QC plan shall provide in detail, measures taken to assure product uniformity and consistency. In addition, the QA/QC plan shall include a waste product sampling plan in accordance with Reference 1.

SUPPORTING DATA AND DOCUMENTATION

The applicant shall develop a recordkeeping and reporting system for department review and approval which at a minimum, provides for maintaining distribution records, application rates, results of all tests performed as part of a QA/QC plan, procedures for monitoring the stabilization process (if applicable) and procedures for reporting this information.

REFERENCES

1. Delaware Department of Natural Resources and Environmental Control (DNREC). Guidance and Regulations Governing the Land Treatment of Wastes. October, 1999.
2. NRCS Standard 590. Nutrient Management. May 2002.